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(54) Title: CELLULAR ARRAYS FOR RAPID MOLECULAR PROFILING

(57) Abstract

A method is disclosed for rapid molecular profiling of tissue or other cellular specimens by placing a donor specimen in an assigned location in a recipient array, providing copies of the array, and performing a different biological analysis of each copy. In one embodiment, the copies of the array are formed by placing elongated specimens in a three dimensional matrix, and cutting sections from the matrix to form multiple copies of a two dimensional array that can then be subjected to the different biological analyses. Alternatively, the array can be formed from cell suspensions such that identical multiple copies of an array are formed, in which corresponding positions in the copies of the array have samples from the same or similar specimen. The results of the different biological analyses are compared to determine if there are correlations between the results of the different biological analyses at each assigned location. In some embodiments, the specimens may be tissue specimens from different tumors, which are subjected to multiple parallel molecular (including genetic and immunological) analyses. The results of the parallel analyses are then used to detect common molecular characteristics of the tumor type, which can subsequently be used in the diagnosis or treatment of the disease. The biological characteristics of the tissue can be correlated with clinical or other information, to detect characteristics associated with the tissue, such as susceptibility or resistance to particular types of drug treatment. Other examples of suitable tissues which can be placed in the matrix include tissue from transgenic or model organisms, or cellular suspensions (such as cytological preparations or specimens of liquid malignancies or cell lines).

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